



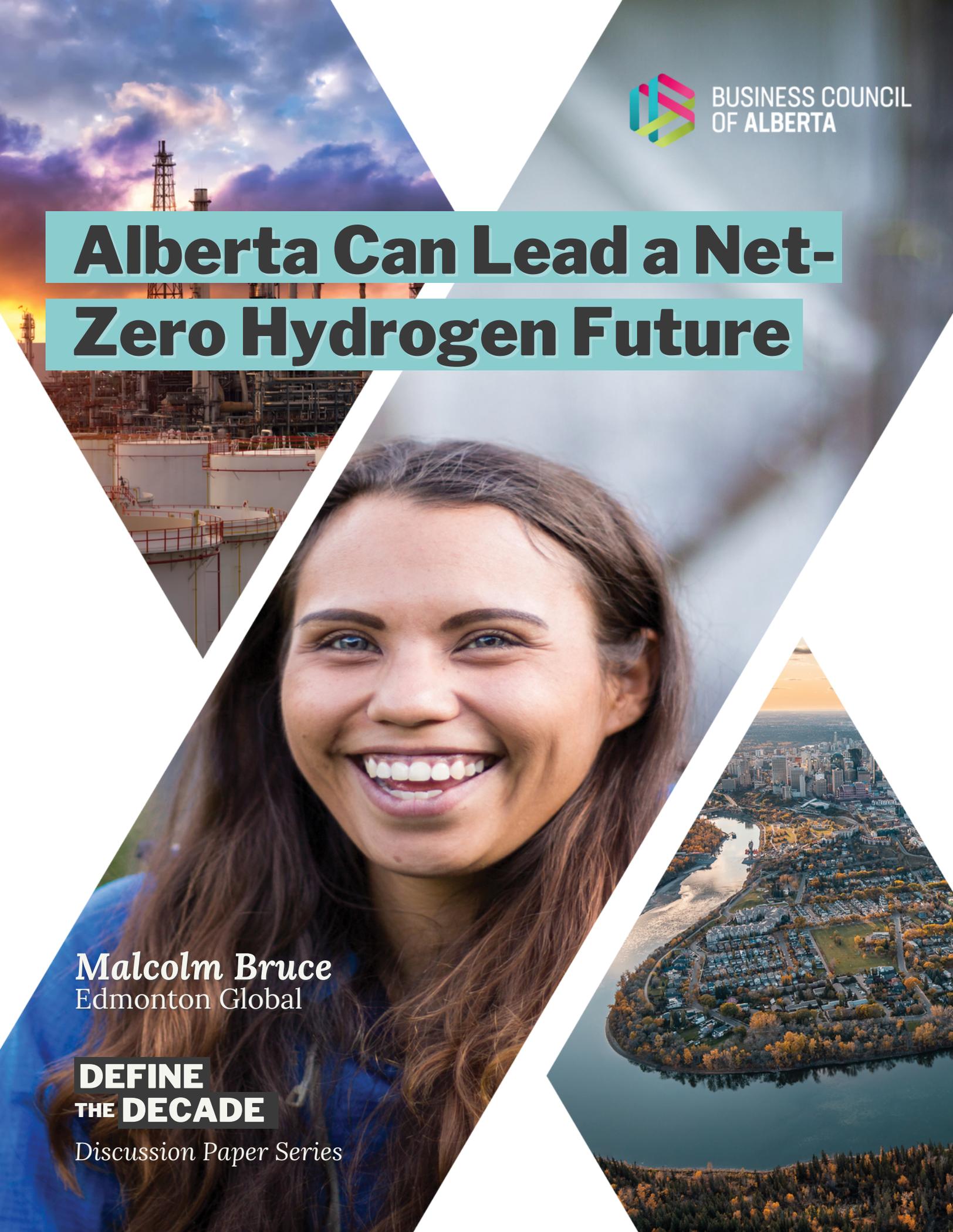
BUSINESS COUNCIL  
OF ALBERTA

# Alberta Can Lead a Net-Zero Hydrogen Future

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Edmonton Global

**DEFINE  
THE DECADE**

*Discussion Paper Series*



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**About the Business Council of Alberta**

The Business Council of Alberta is a non-partisan, for-purpose organization dedicated to building a better Alberta within a more dynamic Canada. Composed of the chief executives and leading entrepreneurs of the province's largest enterprises, Council members are proud to represent the majority of Alberta's private sector investment, job creation, exports, and research and development. The Council is committed to working with leaders and stakeholders across Alberta and Canada in proposing bold and innovative public policy solutions and initiatives that will make life better for Albertans.

**Land Acknowledgement**

In the spirit of truth, reconciliation, and respect, we honour and acknowledge the lands upon which we live and work as guests, including the traditional territories of the First Nations in Treaties 6, 7, and 8 and the citizens of the Metis Nation of Alberta. We thank the First Peoples of this land, which we now call Alberta, for their generations of stewardship of the land, and we seek to walk together in the spirit of truth and reconciliation to build a shared future for all in Alberta.

*This document reflects the views of the author based on their own research and expertise. This is published by the Business Council of Alberta. It may not necessarily reflect the perspective of all BCA member companies, and should not be read as the position of any one member or of the Council itself.*

# About the Author

After spending 30 years in the military living overseas and across Canada, Malcolm chose the Edmonton Metropolitan Region as the place where his children and grandchildren could achieve their full potential without having to move elsewhere. Formerly the CEO of the Edmonton Metropolitan Region Board, Malcolm joined the newly-formed Edmonton Global in 2018. He's proud of the region's welcoming and inclusive community. It's a region where people can grow, enjoy and thrive.



**Malcolm Bruce**  
Edmonton Global

Alberta can lead a net-zero future and ensure our economy continues to thrive for generations to come by leading the transition to hydrogen. There is, after all, no greater intergenerational issue for our province, country, or planet.

Key investments in infrastructure, including hydrogen pipelines and carbon sequestration, as well as collaboration between all orders of government and Indigenous Peoples, will be critical to the scaleup of this industry.

**The global race is on to adopt hydrogen technologies—countries around the world are positioning to become tomorrow’s hydrogen superpowers. We need to move aggressively to take advantage of this opportunity for Alberta and Canada. Now is the time to establish the Edmonton Metropolitan Region and Alberta as a world leader in clean hydrogen.**

Both the federal and Alberta governments see hydrogen as a necessary component to achieving our climate goals while being part of a multi-trillion-dollar global economic development opportunity—but there’s more that can and should be done.

While most of our economy could eventually transition to electricity, roughly 30 per cent of our energy consumption will be very difficult to electrify. For example, hydrogen is ideal for refining oil; producing petrochemicals and fertilizers; as a transportation fuel for long-haul trucking, heavy machinery, and busses; and in high-heat manufacturing of materials like glass, concrete, and steel. Globally, this represents an \$11-12 trillion market by 2050. The stakes are massive.

Alberta's goal should be to move quickly and become a frontrunner in the global hydrogen race. There are only a handful of places in the world that have the available resources, geology, use cases, and regulatory frameworks to do this, and Alberta can be at the very top of this global list. We have an almost unparalleled opportunity at our fingertips if we act quickly.

So, we need to invest in infrastructure to move hydrogen within our regions, across Canada and to international markets.

Many countries recognize hydrogen’s transformative potential and are beginning to incorporate it into their economic and energy strategies. Japan, South Korea, China, Germany, and California are key markets looking for clean hydrogen, and the Edmonton Region has what they need. We can produce net-zero hydrogen at a low cost and at a volume that can make a global difference. However, we must ensure we don’t hold ourselves back.

**Alberta is Canada’s largest hydrogen producer.**

And the Edmonton Metropolitan Region is at the forefront of Canada’s hydrogen sector, responsible for two-thirds of Alberta’s production—which in turn provides approximately two-thirds of Canada’s total hydrogen production—and this is scaling rapidly. In June 2021, [Air Products announced their plans](#) to invest \$1.6 billion to build the world’s largest net-zero hydrogen energy complex in Edmonton, set to come on stream in 2024. Fort McMurray, Grande Prairie, and Medicine Hat also have notable activity in hydrogen production. For example, ATCO launched Alberta’s first hydrogen blending project in July 2020 and is expected to be completed in 2023. As more projects come online, Alberta can significantly increase its global strategic importance.

Alberta has competitive advantages when producing hydrogen, such as our abundant supply of low-cost natural gas, our existing carbon capture and storage infrastructure, and our knowledgeable workforce. Getting this product to domestic users, and to international markets ultimately requires scaleable transportation systems like pipelines and Alberta’s pipeline infrastructure and expertise in pipeline technologies are unmatched.

However, unlocking this resource by transporting hydrogen to international markets will take political will and interprovincial cooperation.

Moreover, projects of this scale take significant time in Canada—a major disadvantage when competing with international jurisdictions that, in some cases, can move very quickly. We must act at a pace that demonstrates our commitment to addressing the climate emergency and that we can and want to be part of the solution. Right now, investors and countries lack faith that Canada can deliver on our hydrogen promise and build the needed infrastructure to get our hydrogen to international markets. Furthermore, recent incentives being put in place by the United States are eroding our competitive advantage. We must set forth a renewed approach to building our hydrogen economy. If we commit to doing this, it could define the decade for generations to come.

We are already seeing evidence that the opportunity goes far beyond the production of hydrogen. Several projects have been initiated in the Edmonton region, including hydrogen fuel cell buses and long-haul trucks, and hydrogen-diesel dual-fuel vehicles. The Edmonton International Airport is also exploring the use of hydrogen across airport operations, from ground service fleets to aircraft. Canadian Pacific launched and expanded its [Hydrogen Locomotive Program](#), which will see the world's first hydrogen freight locomotive technologies in Calgary and Edmonton. Edmonton Global, the economic development agency for the Edmonton region, is working with several partners to build off the region's early pilot projects to accelerate the deployment of the first 5000 hydrogen vehicles over the next five years.

The Edmonton region is the centre of Western Canada's energy supply chain—with many of these companies poised to play a significant role in hydrogen production, transportation, and use. The region also has a successful track record in building disruptive technologies.

As one of three national artificial intelligence (AI) hubs, it is creating opportunities to apply AI and machine learning (ML) to the energy sector and accelerating innovation. Our region is an energy innovation sandbox where ideas and technologies can be tested, iterated, and built out at scale—and this is exactly what is happening with hydrogen technologies right now.

Alberta is also beginning to attract advanced manufacturing companies; technology and AI startups; and the financial, venture capital, and fintech sectors, all looking to be part of this emerging hydrogen economy. This will generate significant economic impact and jobs. Edmonton Global and post-secondary institutions across Alberta have teamed up to complete a labour market research project, with grant support from government, to determine the workforce that will be required to effectively transition into the hydrogen economy. Many of the skills required to work in the traditional oil and gas sector are transferable to working with hydrogen.

Opportunities associated with the hydrogen economy need to be accessible to key segments of our society. For example, we have a moral and economic obligation to overcome the barriers we've created to working across provincial boundaries on pipelines. And as a country, we must respect and include Indigenous Peoples in this work as full and equal partners.

The time to act is now. We must accelerate our pace, collaborate to build infrastructure to access international markets, ensure our regulatory environment is an enabler, and be bold in placing Alberta and Canada at the forefront of this global energy transition.

**We have a critical and global role to play; let's make sure we're at the table.**



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Define the Decade is a vision for the future of Alberta and a roadmap to get there. To learn more about this project and how you can get involved, please visit [DefinetheDecade.com](http://DefinetheDecade.com)